

KAVETSKAYA, A.G.; LAPOVA, A.I., starshiy inzhener-agrometeorolog;
SUKNEVA, Ye.V., starshiy inzhener-klimatolog; VLADIMIROVA,
N.V., inzh.-agrometeorolog; KURIYEV, M.I., inzh.-agrometeorolog;
TSERTSVADZE, Sh.I.; CHIRAKADZE, G.I., dotsent, starshiy nauchnyy
sotrudnik; BABAYEV, A.D., otv.red.; USHAKOVA, T.V., red.; VOLKOV,
N.V., tekhn.red.

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Kratkii agroklimaticheskii spravochnik po Azerbaidzhanskoi SSR.
Leningrad, Gidrometeor.izd-vo, 1959. 67 p. (MIRA 13:2)

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Nauchno-issledovatel'skogo gidrometeorologicheskogo instituta
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sluzhby Azerbaydzhanskoy SSR (for Babayev).
(Azerbaijan--Crops and climate)

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KISILENKO, A.A.; SALLIOVA, A.I.; SERENOVA, A.I.; SYRISOVA, Ye.M.;
MIKHAYLOVA, A.D.; GUK, Yu.I.; MIKOLAYEVA, Z.A.;
NYZENBERG, M.M.; MIKHAYLOVA, K.L.; USHAKOVA, T.V., red.

[Agroclimatological manual for Stalino Province] Agrokli-
maticheskii spravochnik po Stalinskoj oblasti. Leningrad,
Gidrometeoizdat, 1959. 101 p. (MIRA 17:8)

1. Ukraine. Upravleniye gidrometeorologicheskoy sluzhby.
2. Nachal'nik Otdela agrometeorologii Kiyevskoy gidro-
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T.V., red.; SERGEYEV, A.N., tekhn. red.

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ningrad, Gidrometeoizdat, 1959. 111 p. (MIRA 17:4)

1. Ukraine. Upravleniye gidrometeorologicheskoy sluzhby.

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[Characteristics of dry winds as they affect agriculture]
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M.S.Kulika, I.M.Petunina. Leningrad, Gidrometeor.izd-vo,
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[Agroclimatic reference book on Kemerovo Province] Agroklimatecheskii spravochnik po Kemerovskoi oblasti. Leningrad, Gidrometeor.izd-vo, 1959. 135 p. (MIRA 13:2)

1. Novosibirsk. Gidrometeorologicheskaya observatoriya.
2. Novosibirskaya gidrometeorologicheskaya observatoriya (for Brok, Kovalova, Kel'chevskaya, Iznairakaya, Kukharskaya, K.P. Pakhnevich, Dymovich, Vorob'yeva). 3. Direktor Novosibirskoy gidrometeorologicheskoy observatorii (for Leontovich).
(Kemerovo Province--Crops and climate)

LOZHKOMOTYEVA, A.D.; TRESTMAN, A.G.; LEONT'YEVA, R.S., mladshiy nauchnyy sotrudnik; PODOLYAN, A.F.; TRET'YAKOVA, O.I.: Prinimali uchastiye: PAVLOVA, I.A., inzh.; GORYACHEVA, G.A., starshiy tekhnik; SELI-VERSTOVA, Z.P., starshiy tekhnik; FEDOSOVA, M.I., tekhnik; GORSHKOVA, M.I., tekhnik; KOPEYKA, V.K., tekhnik; TIMOFEYEVA, V.F., tekhnik; KOSINOVA, Z.I., tekhnik. GONCHAROV, Ye.P., otv. red.; USHAKOVA, T.V., red.; SERGEYEV, A.N., tekhn.red.

[Agroclimatic reference book on the Tajik S.S.R.] Agroklimaticheskii spravochnik po Tadzhikskoi SSR. Leningrad, Gidrometeor. izd-vo, 1959. 151 p. (MIRA 13:2)

1. Stalinabad. Gidrometeorologicheskaya observatoriya. 2. Stalinabadskaya gidrometeorologicheskaya observatoriya Upravleniya gidrometeorologicheskoy sluzhby Tadzhikskoy SSR (for Lozhkomoyeva, Trestman, Podolyan, Tret'yakova). 3. Institut pochvovedeniya AN Tadzhikskoy SSR (for Leont'yeva).
(Tajikistan--Crops and climate)

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USHAKOVA, T.V., red.; FLAUM, M.Ya., tokhn.red.

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Izmerenie vlazhnosti vozdukh; metody i pribory. Leningrad,

Gidrometeor.izd-vo, 1959. 181 p.

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red.; SEROBYEV, A.N., tekhn.red.

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processing and practical utilization of observational data]
Voprosy metodiki sharopilotnykh nabludeni, ikh obrabotka i
prakticheskoe primeneniye. Leningrad, Gidrc-meteor.izd-vo, 1959.
226 p. (MIRA 13:1)

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T.V., red.; SERGEYEV, A.N., tekhn.red.

[Climate of the Northern Caucasus and adjacent steppes] Klimat
Severnogo Kavkaza i prilozhashchikh stepei. Pod red. O.A.Drozdo-
va. Leningrad, Gidrometeor.izd-vo, 1959. 367 p. (MIRA 13:2)
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[Oceanography] Okeanografiia. Izd.2. Leningrad, Gidrometeor.
1zd-vo, 1959. 536 p. (MIRA 12:5)

1. Pochetnyy chlen Akademii nauk SSSR, Pochetnyy prezident Geograficheskogo obshchestva Sovetskogo Soyuza (for Shokal'skiy).
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[Method for the preparation of ten-day weather forecasts]
Metod kompleksnogo prognoza pogody na 10-dnevnye periody.
Leningrad, Gidrometeor.izd-vo, 1960. 78 p.

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(Russia, Northern--Meteorology, Maritime)

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nauchnyy sotrudnik, retsenzent; KACHAYEVA, O.L., nauchnyy sotrudnik,
retsenzent; POPOVSKAYA, O.M., nauchnyy sotrudnik, retsenzent;
POBETOVA, T.A., nauchnyy sotrudnik, retsenzent; RUDNEV, V.M.,
nauchnyy sotrudnik, retsenzent; SAVZDARG, S.F., nauchnyy sotrudnik,
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[Agroclimatic reference book on Chuvashia] Agroklimaticheski
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1. Gorkiy. Gidrometeorologicheskaya observatoriya. 2. Tsentral'nyy
institut prognozov (for GulinoVA, Kachayeva, Popovskaya, Pobetova,
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BABUSHKIN, Leonid Nikolayevich; DZHORDZHIO, V.A., otv. red.; USHAKOVA, T.V.,
red.; BRAYNINA, M.I., tekhn. red.

[Agroclimatic subdivision of the cotton zone of Central Asia] Agro-
klimaticheskoe raionirovanie khlopkovoi zony Srednei Azii. Leningrad,
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155 p. (MIRA 13:10)

(Transcaucasia--Thunderstorms)

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VOROB'YEV, Valeriy Igorevich; MATVEYEV, L.T., dotsent, otv.red.;
USHAKOVA, T.V., red.; BRAYNINA, M.I., tekhn.red.

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v vysokikh i umerennykh shirotakh. Leningrad, Gidrometeor.izd-vo,
1960. 233 p. (MIRA 13:7)

(Jet stream)

GOL'TSBERG, Ida Arturovna; POKROVSKAYA, T.V., otv. red.; ZHDANOVA, L.P.,
red.; USHAKOVA, T.V., red.; VOLKOV, N.V., tekhn. red.

[Unseasonable frosts in the U.S.S.R., their agroclimatic characteristics
and control] Agroklimaticheskaya kharakteristika zamorozkov v SSSR i me-
tody bor'by s nimi. Leningrad, Gidrometeor. izd-vo, 1961. 197 p.
(MIRA 14:7)

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BERLYAND, Tamara Grigor'yevna; BUDYKO, M.I., otv. red.; USHAKOVA, T.V.,
red.; YASNOGORODSKAYA, M.M., red.; BRAYNINA, M.I., tekhn. red.

[Distribution of solar radiation over continents] Raspredelenie
solnechnoi radiatsii na kontinentakh. Leningrad, Gidkrometeor.
izd-vo, 1961. 255 p. maps. (MIRA 14:9)
(Solar radiation)

USHAKOVA, V. B.

"Structural characteristics in systems of automatic regulation" (Strukturnie kharakteristiki sistem avtonaticheskogo regulirovaniya), published by the State Publishing House of Power Engineering Literature, Moscow-Leningrad 1948.

USHAKOVA, V.F.

UICR/Human and Animal Physiology - The Effect of Physical Factors.

V-12

Abs Jour : Ref Zhur - Biol., No 4, 1958, 18798

Author : I.S. Rubanovskaya and V.F. Ushakova

Inst : -

Title : The Accumulation of Radioactive Strontium in Young Rats Born from and Nursed by Females Receiving Sr^{89} and Sr^{90} Perorally for a Long Period of Time.

Orig Pub : Materialy po toksikol. radioaktivn. veshchestv. Vyp. 1, Moskva, Medgiz, 1957, 23-31

Abstract : The rats of one group were given a daily dose of about 0.65 microcuries of Sr^{89} and those of another group a daily dose of 0.3 microcuries of Sr^{89-90} . The Sr was given before and during pregnancy and during nursing until the young rats were a month old. The radioactivity determinations were accomplished by measuring the activity of a weighed portion of the dry ash of the young

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JMCR/Moran and Animal Physiology - The Effect of Physiological Factors.

Abstr Jour : Ref Zhur - Biol., No. 4, 1953, 187-8

rats. The accumulation of Sr in their bodies were determined chiefly by the amount of the isotope which had been received by the females during pregnancy. Sr fixed in the mother's body before pregnancy infiltrated into the offspring only to a negligible extent. Giving Sr to the females during lactation increased the amount of it in the young rats. When a full transition had been made to independent feeding, the concentration of Sr in the young rats decreased rapidly, and it had completely disappeared when they reached the age of 7 to 7.5 months.

Card 2/2

Труды Ленинградского государственного университета Института химической физики Академии наук СССР Известия, 1965, № 1-3	
The volume consists of a table of contents (attached), an introduction in which the author outlines the purpose of the book, and two sections. The first section deals with the problem of the chemical protection of the organism from penetrating radiation. A brief analysis is given of the contemporary state of this problem. A brief analysis is given of the chemical (radioprotectors and pyridine derivatives) are examined.	
The second section deals with the problem of the elimination of radioactive isotopes from the organism. The effectiveness of certain chemical compounds which have been introduced into the organism, have the capacity to form with the radioactive compounds which could be readily eliminated from the organism is examined.	
Introduction	
Part 1. Chemical Protection from Ionizing Radiation	Present State of Chemical Protection from Ionizing Radiation by V. G. Yakovlev and L. S. Ilyukha
7	Relationship between the Structure and Properties of Radioprotecting Compounds and their Protective Action from Penetrating Radiation by V. G. Yakovlev
18	On the Mechanism of the Protective Action of Some Radioprotecting Compounds by V. G. Yakovlev and L. S. Ilyukha
41	Effect of Protective Doses of Iodine on the Level of Incorporation of Radioiodine into the Tissues of Mice by L. S. Ilyukha
55	Effect of Protective Substances on Protein Synthesis in the Liver and Kidney of Mice by V. G. Yakovlev and L. S. Ilyukha
62	On the Mechanism and Type of the Protective Action of Derivatives of Sulfoxonium Compounds and Quaternary Ammonium Salts by V. G. Yakovlev and L. S. Ilyukha
72	Effect of Radioprotecting Compounds on the Formation of Organic Peroxides in the Irradiated Organism by V. G. Yakovlev and L. S. Ilyukha
82	Feasibility of the Utilization of Chemical Compounds as Energy Traps in the Protection from Penetrating Radiation by G. I. Prishvin
93	Part 2. Elimination of Radioactive Isotopes from the Organism
General Information	
111	Physicochemical (Chemical) Investigation of the Effectiveness of Certain Compounds in the Elimination of Radioactive Isotopes from the Organism by L. S. Ilyukha and L. N. Radtsig
117	Characteristics of the State of Radioactive Isotopes in the Blood by L. S. Ilyukha
125	Effect of Complex-Forming Substances on the Binding of Radioisotopes in the Blood by L. S. Ilyukha and V. S. Malobukha
130	Character and Stability of YH₃ and in Bone Tissue by L. S. Ilyukha, O. L. Korshakova, and V. S. Malobukha
136	Analysis of the Effectiveness of Complex-Forming Substances in the Elimination of Radioactive Isotopes from the Organism by G. I. Prishvin and V. I. Zhukova

TORCHINSKAYA, O.L.; RAZUMOVSKIY, N.O.; YASHUNSKIY, V.G.; BALABUKHA, V.S.
USHAKOVA, V.F.

Excretion of radioactive cerium from the body under the influence of triethylenetetraaminehexaacetic and tetraethylenepentaminoheptoacetic acids. Radiobiologiya 3 no.2:270-275 '63
(MIRA 17:1)

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ACCESSION NR: AP5017373

UR/0020/65/160/004/0950/0953

AUTHOR: Kugatova-Shemyakina, G. P.; Ushakova, V. E.; Rudenko, V. A.; Smirnova, G. P.; Grechushnikov, A. I.; Mishurovskaya, L. M.; Agakishiyev, D. A.; Pen'kov, L. A.

TITLE: New growth stimulators

SOURCE: AN SSSR. Doklady, v. 160, no. 4, 1965, 960-963

TOPIC TAGS: plant development

Abstract: Compounds from the following groups were synthesized by the authors and found to be highly active as plant growth stimulators: delta-3-cyclohexenyl- and cyclohexylbutanolones, delta-3-cyclohexenylbutenones, cyclohexylbutanes, and cyclohexylbutenones. The authors were particularly interested in determining the relationship between the structure and degree of activity of the compounds. Laboratory and field tests on the potato showed: (1) compounds of the cyclohexene series were more active than the corresponding compounds of the cyclohexane series; (2) the introduction of a methyl group into the ring, especially in position 2 or 6, significantly increased the activity of the compound; (3) the substitution of a phenyl for a methyl group increases the activity even more; (4) the introduction of a second methyl

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group into the ring not only does not increase the activity of the compound, it may even decrease it; (5) growth stimulation also depends on the spatial structure of the molecule. Orig. art. has 6 tables.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry, Academy of Sciences, SSSR); Institut kartofel'nogo khozyaystva, Akademii nauk TurkmSSR (Institute of Potato, Academy of Sciences TurkmSSR); Institut botaniki, Akademii nauk TurkmSSR (Institute of Botany, Academy of Sciences TurkmSSR); Institut ovoshchnogo khozyaystva, Akademii nauk TurkmSSR (Institute of Vegetable Growing, Academy of Sciences, TurkmSSR)

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CHAPTER 7 BOOK EXPLOITATION

(*) T2

International Conference on the Peaceful Uses of Atomic Energy

2nd, Geneva, 1958.

Doklady sovetskikh uchanykh yadernyye reaktory i yadernaya energiya. (Reports of Soviet Scientists: Nuclear Reactors and Nuclear Power). Moscow, Atomizdat, 1959. 707 p. (Series: Itogi nauki i tekhn., ser. fiz.-mat. nauki, vol. 2) 8,000 copies printed. 1 rub. 20 k.

General Eds.: N.A. Dollezhal, Corresponding Member, USSR Academy of Sciences, A.E. Krasin, Doctor of Physical and Mathematical Sciences, I.L. A.I. Lypunskiy, Member, Ukrainian SSR Academy of Sciences, and V.S. Morozov, Corresponding Member, USSR Academy of Sciences; Ed.: A.B. Fursov, Doctor of Physical and Mathematical Sciences; Ed.: A.B. Fursov, Doctor of Physical and Mathematical Sciences; I. Marel'.

PURPOSE: This book is intended for scientists and engineers engaged in reactor designing, as well as for professors and students of nuclear engineering. The book is written in a simple and accessible style. The design of a reactor is taught.

COVERAGE: This is the second volume of a six-volume collection on the peaceful use of atomic energy. The six volumes contain the reports presented by Soviet scientists at the Second International Conference on Peaceful Uses of Atomic Energy, held from September 1 to 13, 1958 in Geneva. Volume 2 consists of three parts. The first is devoted to atomic power plants under construction in the Soviet Union; the second to experimental and research reactors, the experimental reactors set out on these, and the work to improve them; and the third, which is predominantly theoretical, to problems of the use of atomic energy in the peaceful uses of atomic energy. The lead author is physicist and construction engineering. Muravkin is the science editor of this volume. See SOV/5801. For titles of all volumes of the set. References appear at the end of the articles.

Dollechal', M. A., A. I. Krasin, M. A. Nikolayev, A. M. Orlovskiy, and G. M. Yanikov. Experiment of Operating the First Atomic Power Plant in the USSR and the Plant's Work Under Boiling Conditions (Report No. 2183) 15

Dollozheni, M.M., A. I. Kravits, P. I. Alekshchenko, A. M. Grits'yanka,
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 V. M. Stukovitskiy, L. I. Kityavskiy, and A. M. Golitsin. A Graphitic-
 uranium Reactor With High Pressure Steam Superheats (Report No.
 2130)
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Alexandrov, A.P.; I.I. Afanasyov, A.L. Brandau, A.L. Brandau,
S.A. Vladkov, B.Ya. Gushin, V.A. Mezanov, and N.S. Enlopin.
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Sivintsev, Yu. V. and P. O. Polingikh. Radiation Safety System of
the Atomic Testbreaker (Report No. 2518) 87

the atomic agreement. (p. 4)

Строгачев, С. А. Water-water Power Reactors (VVER) in the USSR (Q5)
(Report No. 2184)

С. А. Строгачев, С. В. Ковалев.

Aspartumyan, B.S., A.M. Olubov, V.V. Goncharov, A.S. Zolotarev and G.A. Skvortsov. Heat-producing Elements for Water-water Reactors of Atomic Power Plants (Report No. 2196)

Rushlimo, G. N. and V. I. Subbotin.
Cooling Water-water Reactors
(Report No. 214)
134

Yermakov, V.S. and I.V. Ivanov. A Study of Unsteady Heat Transfer in Heat-producing Elements of Nuclear Reactors (Report 15)

No. 2470)
Yvanovsky, M.M., V.I. Subbotin, and P.A. Nabatov. High-speed
transferring the heat transfer coefficient in the pipe

Method of Measuring the
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Urutaladze, S.S., V.I. Subbotin, V.M. Borishavsky, and P. L.
Metal in the

Krillov. Heat Exchange During the flow of liquid ammonia in
Pipes (Report No. 2210)

Truschkovskiy, O. B., Economics of nuclear reactors (Report No. 208)
Belkin, V. B., Radtsigovichskiy, D. S., Sidakov, O. V., Shvetsov,

USHAKOV, P.A.

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PLATE I BOOK EXPLANATION

SOV/1991

Akademicheskaya SSSR. Energeticheskoy Institut

Voprosy teploobmena (Heat-Exchange Problems) Moscow, 1959. 237 p. Errata slip inserted. 2,800 copies printed.

Reep. Ed.: M.A. Mikhayev, Academician; Ed. of Publishing House: O.B. Gornikova; Tech. Ed.: I.P. Ivaikin.

PURPOSE: This collection of articles is intended for scientific workers, engineers, and postgraduate students specializing in thermodynamics.

CONTENTS: The collection reviews problems of heat transfer and explores possibilities of scientific heat exchange. The heat exchange theory is outlined, and the role of scientists who contributed to its development are mentioned. Thermophysical properties of some molten metals and alloys are analyzed, and methods are proposed to determine them presented. Equipment used for assuring thermal conductivity, heat capacity, and kinetic heat transfer coefficients are discussed. Results of experimental study of the identified heat exchange for a water flow in an annular channel are analyzed and the instruments used along with their operation plant for studying convection at exchange in contacting nonmiscible fluids are described. Instruments and equipment used for determining the linear expansion of metals, the consumption of a liquid, and the absorption capacity of a surface are also described and illustrated. A number of equations for solving various thermodynamic problems are presented. Each article is accompanied by references, the majority of which are Soviet.

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SOV/89-8-1-12/29

AUTHORS: Ibragimov, M. Kh., Subbotin, V. I., Ushakov, P. A.

TITLE: Investigation of Heat Irradiation During Turbulent
Flow of Heavy Metals Through Pipes. Letter to the Editor

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 1, pp 54-56 (USSR)

ABSTRACT: Two setups were used, one for mercury and the other for lead and an eutectic alloy of lead and bismuth (43.5% Pb + 56.5% Bi). Experiments with mercury. The 99.9% pure mercury R-3 was sent through a suede filter. It circulated in the apparatus through a countercurrent heat exchanger of 17 x 12.5 mm tube diameter made of stainless steel 1Kh18N9T. Water circulated in the annular space 4.5 mm wide, and the useful heat-exchange region was 760 mm long. A region of hydrodynamic stabilization equal to 40 diameters was provided at the entrance to the heat exchanger. Auxiliary heaters on both ends prevented escape of heat along the tube, and the temperature at both ends was measured by thermocouples. The

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heat transfer was then determined in the usual way. The arithmetic average of the thermocouple temperature was used as the average mercury temperature while the average temperature on the heat-exchange surface was obtained after planimeter measurements of the temperature profile along the exchanger. Correction was made for the depth of the build-in of the thermocouples. Lead and lead-bismuth alloy experiments. Argon was used to prevent oxidation of the liquid metal, previously purified from oxides by hydrogen reduction. Chemical analysis showed that during the experiment the oxygen content was practically constant at $1 \cdot 10^{-3}$ % weight. The tube was of 12 x 9 mm diameter of stainless steel 1KH18N9T, with a brouched inner surface. Temperature was measured using a resistance thermometer of platinum wire 0.07 mm in diameter, 1800 mm long and taped every 118 mm. The thermometer was 33 diameters away from the origin of the heating region. Liquid metal temperature at the entrance was also measured

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with a resistance thermometer while the heat carrier temperature was determined using a chromel-alumel thermocouple. The discharge of the liquid metal was determined using a previously calibrated magnetic flowmeter. The heat flow was produced by electric heating. The length of the heat-exchange region was 520 mm. Experimental results. The average heat exchange coefficient of mercury was determined in a region of the heat exchanger equal to 60 diameters. The section of preliminary hydrodynamic stabilization was equal to 40 diameters, while the lead and lead-bismuth alloy measurements refer to a region 33 diameters from the origin of the heated region and 41 diameters from the entrance into the tube. The results are, therefore, in the stable region. The limits of variation for some of the pertinent quantities are given in the table.

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Variation of quantities during experiments.

Parameters	Mercury	Lead	Eutectic alloy lead-bismuth
Temperature, °C	24-48	400-420	250-340
Preheating, °C	1-13	1,5-3	1-22
Temperature head, °C	3-14	2-3,2	1,4-5,3
Velocity of liquid metal, m/sec	0,4-4	1,5-3,5	0,2-5,6
Heat load, Kcal/m ² ·hour	(20-100)·10 ³	42·10 ³	(11-52)·10 ³
Coefficient of heat transfer, Kcal/m ² ·hour	(4-15)·10 ³	(13-23)·10 ³	(6,6-24)·10 ³
Prandtl number, Pr·10 ³	22-27	20	20-27
Reynolds number, Re·10 ⁻³	40-400	65-160	8-290
Peclet number, Pe·10 ⁻³	1-10	1,3-3,2	0,2-5,8
Nusselt number, Nu	7-27	8,6-15	6-19

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BIN/51-2-1-12/89

The figure shows the experimental results together with the curves obtained from an empirical equation developed by Mikheyev and others (Ref. 1, M. A. Mikheyev, V. A. Baum, K. D. Voskresenskiy, O. S. Fedynskiy, Reactor Construction and Theory, Izdat AN SSSR, 1955, p 139).

$$Nu = 4,5 + 0,014 Pe^{0,4} \quad (1)$$

and the semiempirical equation by Lyon

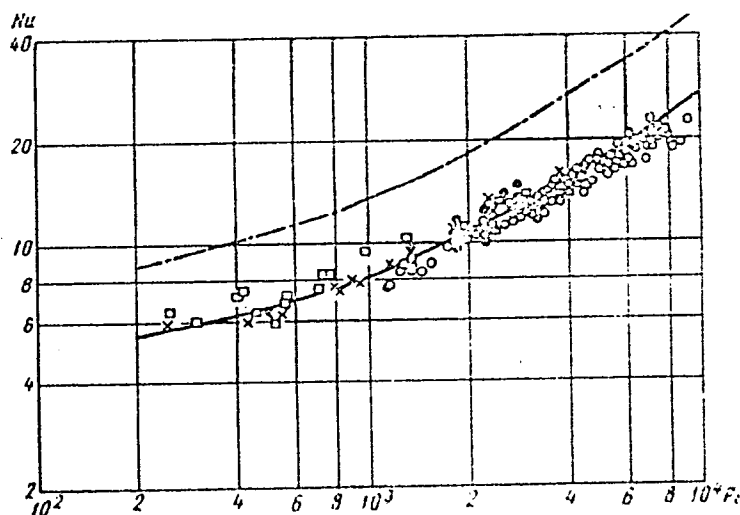
$$Nu = 7 + 0,025 Pe^{0,4} \quad (2)$$

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Experimental results
processed utilizing
similarity criteria:

o - mercury; • - lead;
□ - eutectic alloy lead-
bismuth; x - eutectic
alloy lead-bismuth with
the addition of 0.1%
magnesium; — - according
to the equation in refer-
ence [1] (above
 $Nu = 4.5 + 0.014 Pe^{0.8}$;
- - - - - according
to the equation by Lyon,
 $Nu = 7 + 0.025 Pe^{0.8}$.



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The results agree with the Eq. (1) probably because the liquid metals were not purified during the experiment, and the heat-exchanging surface was not subjected to moistening. One can then assume that under such conditions there existed a thermal resistance which led to disagreement with the curve obtained by using Eq. (2). In later experiments the authors determined the temperature field inside the flow of liquid metal. Computing the coefficients of heat irradiation by extrapolating the temperature profile all the way to the walls, they obtained results in agreement with Eq. (2). Kh. A. Khachaturov, A. A. Sholokhov, V. I. Petrovichev, Ye. V. Nomofilov, and O. V. Remizov took part in building equipment and collecting experimental data. There is 1 figure; and 8 references, 5 Soviet, 1 U.K., 2 U.S. The U.K. and U.S. references are: H. Brown, B. Amstead, B. Short, Trans. ASME, 79, 279 (1957); R. Lyon, Chem. Engng. Progr., 47, 25 (1951); S. Isakoff, T. Drew, General Discussion on Heat Transfer,

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Turbulent Flow of Heavy Metals Through Pipes.
Letter to the Editor

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SOV/89-8-1-12/29

London Conference, 1951, p 405.

SUBMITTED: January 6, 1959

Card 8/8

SUBBOTIN, V.I.; USHAKOV, P.A.; GABRIANOVICH, B.N.

Hydraulic resistance to the flow of a liquid about a bundle of rods.
Atom.energ. 9 no.4:308-310 0 '60. (MIRA 13:9)
(Hydraulics)

84231

S/089/60/009/004/011/020

B006/B070

11.9200

AUTHORS: Subbotin, V. I., Ushakov, P. A., Sviridenko, I. P.

TITLE: Investigation of Heat Exchange in a Turbulent Flow of Mercury in an Annular Gap

PERIODICAL: Atomnaya energiya, 1960, Vol. 9, No. 4, pp. 310 - 312

TEXT: The authors of the present "Letter to the Editor" studied the heat transfer to mercury flowing turbulently in a narrow annular gap. In the introduction, the experimental apparatus, which was made of carbon steel, is described, and the experimental dimensions are given. Temperature was measured by thermocouples. The experiments were made for a flow velocity of mercury of between 0.3 and 3.8 m/sec at temperatures 30 - 40°C, and a heat flow q of $25 \cdot 10^{-3}$ to $75 \cdot 10^3$ kcal/m².hour. The heat-transfer coefficients were measured after their stabilization along the channel. The maximum error in the heat-transfer measurement for the second experimental dimensions (400 mm long, gap width 2 mm) was 16 and 30%, respectively, for one- and two-sided heating. The accuracy for the first

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Investigation of Heat Exchange in a Turbulent
Flow of Mercury in an Annular Gap

S/089/60/009/004/011/020
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experimental dimensions (1,000 mm, gap width 1 mm) was somewhat lower. The experiments showed first that the flexures of the inner tube ($d_2/d_1=1.05$) had a significant effect on the temperature field. This shows that in designing heat exchangers the effect of channel deformations may not be neglected. The most important results were obtained for the second experimental dimensions for which channel deformations could be practically excluded. Fig. 1 shows the temperature distribution along the gap for $q = 50 \cdot 10^3 \text{ kcal/m}^2 \cdot \text{hour}$; Fig. 2 shows a comparison between the experimental results and calculations according to semi-empirical formulas; Fig. 3 gives a comparison of the experimental results by the present authors with the experimental results of other authors. The experimental results are summarized as follows: 1) For two-sided heating of a gap with $d_2/d_1 \leq 1.09$ and for equality of the heat flows from both heat-emitting surfaces to the mercury, the heat transfer is about double as much as for a one-sided heating (Fig. 2). Therefore, the use of the hydraulic diameter d_h as a characteristic dimension does not automatically take into account the specialities of heat transfer to liquid metals for a

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one- and two-sided heating of an annular gap. 2) In narrow annular gaps without previous hydrodynamic stabilization, the section of thermal stabilization is $\sim 30 d_h$ for mercury. 3) Every perturbation of the geometry of the annular gap affects the heat transfer to a liquid metal considerably. The authors thank B. N. Gabriyanovich and A. V. Zhukov for assistance. N. I. Buleyev is mentioned. There are 3 figures and 10 references: 5 Soviet and 4 US.

SUBMITTED: October 28, 1959

Card 3/3

SUBBOTIN, V.I., USHAKOV, P.A.; GABRIANOVICH, B.N.; ZHUKOV, A.V.

Heat exchange during the flow of mercury in a closely packed
assembly of rods. Atom. energ. 9 no.6:461-469 D '60. (MIRA 13:12)
(Mercury) (Heat--Transmission)

59923

S/170/61/004/003/001/013
B117/B209

26.2221

AUTHORS: Subbotin, V. I., Ushakov, P. A., Zhukov, A. V.

TITLE: Investigation of heat exchange in a longitudinal flow of water around a bundle of rods with a relative spacing of $s/d = 1.4$

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 3, 1961, 3-9

TEXT: The authors report on investigations carried out in 1959 on rod bundles with $s/d = 1.4$, which were arranged in a chessboard pattern. The experiments were made with distilled water in a flow circuit of stainless 1X18H9T (1Kh18N9T)-type steel. The water was circulated by a rotary pump which, with a water consumption of $\sim 30 \text{ m}^3/\text{h}$, established a pressure of $\sim 10 \text{ kg/cm}^2$. The test bundle consisted of 7 pipes and 12 rods. The pipes were internally heated by nichrome wire spiral heaters. The jacket was heated from outside by a band heater. The heaters were supplied with alternating current from an autotransformer. In the experiments, central pipes of 1Kh18N9T-type steel (no. 1) and of copper (no. 2) were used. In six cross

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B117/B209

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sections on the pipe surface, twelve copper-constantan thermocouples insulated with Vinylflex were mounted. The soldered junctions of the thermoelectric cells were ~ 0.2 mm under the heat exchange surface. Water temperature was measured at both the outflow and inflow end of every cell. The e. m. f. of the thermocouples was measured by means of a low-resistance potentiometer of the ППТН-1 (PPTN-1)-type, with an M25/4 (M25/4) mirror galvanometer. Three series of tests were made with a pipe bundle with a central steel pipe. In the first series, the heat exchange with specific heat currents of $64 \cdot 10^3$ and $94.2 \cdot 10^3$ kcal/m² · hr with all pipes heated was measured. The second series served the study of the effect of the jacket upon the heat exchange in the central cells, with all pipes and the jacket being heated. In the third series, the effect of the heating of all pipes upon the heat exchange with the central pipe was investigated with the central pipe only heated internally: $q = 94.2 \cdot 10^3$ kcal/m² · hr. In experiments with a copper pipe, only the central one was heated; here, the specific heat current was $64 \cdot 10^3$ kcal/m² · hr. Comparison of the experimental data with the formula suggested by M. A. Mikheyev (Sb. "Teplootdacha i teplovoye modelirovaniye", Izd. AN SSSR, 1959) for round pipes showed

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S/170/61/004/003/001/013
B117/B209

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that the experimental points exceed this function by 20 - 40%. The spread of the experimental points increased due to correction (Pr_f/Pr_w) which accounts for the variation of physical parameters of the liquid in the cross section of the canal. The data obtained by heating the central pipe only and by heating all pipes in the bundle were connected by a satisfactory relation. Heating of the jacket hardly changes the heat exchange in the central cells. This offers the possibility of extending the obtained results to bundles with a large number of rods. Formula (6) $Nu_f = 0.0205 Re_f^{0.84} Pr_f^{1/3}$ gives a good approximation to the experimental points. The calculated Re_f and Nu_f characteristic numbers differ in the range concerned by 7 % at most. The results were compared with those of other authors. The errors in measuring the heat exchange coefficient were estimated. Capacity was determined with an accuracy of $\pm 2\%$. The geometrical errors did not exceed $\pm 1\%$. Temperature was measured with an accuracy of $\pm 0.1^\circ C$. The errors due to the correction error with respect to the installed thermocouples did not exceed $\pm 2\%$ in measuring the temperature gradient between wall and liquid. The calculated maximum errors on measurement of the heat exchange coefficients in the investigated

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range of Re numbers amounted to $\pm(8 - 15)\%$ for the steel pipe and to $\pm(7 - 11)\%$ for the copper pipe. Mention is made of A. S. Sinel'nikov, A. P. Salikov, Ya. L. Polynovskiy, and K. I. Belyakov. There are 5 figures and 10 references: 7 Soviet-bloc.

Card 4/4

USHAKOV, P.A.; SUBBOTIN, V.I.; GABRIANOVICH, B.N.; TALANOV, V.D.;
SVIRIDENKO, I.P.

Heat transfer and hydraulic resistance of close-packed bundles
of rods arranged in-line. Atom. energ. 13 no.2:162-169 Ag
'62. (MIRA 15:8)
(Heat--Transmission) (Nuclear reactors)

USHAKOV, P.A.

International Conference on Heat Transfer. Atom. energ. 13
no.3:283-285 S '62. (MIRA 15:9)
(Heat--Transmission)

USHAKOV, P. A.

AID Nr. 987-3 11 June

HEAT TRANSFER OF LIQUID METALS IN PIPE FLOW (USSR)

Subbotin, V. I., P. A. Ushakov, B. N. Gabrianovich, V. D. Talanov, and I. P. Sviridenko. Inzhenerno-fizicheskiy zhurnal, v. 6, no. 4, Apr 1963, 16-21.

S/170/63/000/004/002/017

The Physics and Power Engineering Institute in Obninsk studied heat transfer from Hg at 18 to 60°C and from NaK alloy (22% Na, 78% K) at 70 to 110°C. Three test sections were used. The first consisted of a polished steel tube (20-mm diameter, 0.3-mm wall thickness) to which copper rings (43-mm diameter) were welded at 1-mm intervals. The thermocouples were located inside the copper rings. The second section contained a nickel tube (12-mm diameter, 0.4-mm wall thickness) also equipped with copper rings. The third section consisted of a machined copper tube with a 40-mm outer and a 20.8-mm inner diameter. Two series of experiments were conducted with NaK: 1) at $470 < Pe < 7900$, with oxide contents in the metal ranging from $3 \cdot 10^{-4}$ to $7 \cdot 10^{-4}$ wt %; 2) at $107 < Pe < 640$, with oxide contents of $1 \cdot 10^{-3}$ to $5.2 \cdot 10^{-3}$ wt %. The results showed that the Nusselt number for Hg in nickel and steel tubes and for NaK in copper tubes is identical. This indicates

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AID Nr: 987-31 11 June

HEAT TRANSFER OF LIQUID METALS IN PIPE FLOW [Cont'd] S/170/63/000/004/002/017

that thermal contact resistance is practically absent under the conditions studied. Oxides in concentrations from $3 \cdot 10^{-4}$ to $5 \cdot 10^{-3}$ wt % did not affect heat transfer in NaK. The following formula is recommended at $0.002 \ll Pr \ll 0.003$ and $20 \ll Pe \ll 1000$ for metals containing oxides in concentrations below the solubility limit: $Nu = 4.3 + 0.025 Pe^{0.8}$.

[PV]

Card 2/2

L 5172-66 EPA(s)-2/ENT(m)/EPF(n)-2/T/ENT(t)/ENP(b) IJP(c) JD/WW/
 ACCESSION NR: AT5022450 JG/GS UR/0000/65/000/000/0001/0022

AUTHOR: Subbotin, V. I.; Ushakov, P. A.; Zhukov, A. V.; Talanov, V. D.; Kudryavtseva, L. K.; Sviridenko, Ye. Ya.; Vasil'yeva, L. V.

TITLE: Investigation of the temperature distribution in core and shield elements of BN-350 reactor by means of experimental models

SOURCE: Obninsk. Fiziko-energeticheskiy institut. Doklady, 1965. Eksperimental'noye issledovaniye na modelyakh poloy temperatury teplovydelyayushchikh elementov aktivnoy zony i ekrana reaktora BN-350, 1-22

TOPIC TAGS: nuclear power reactor, fast reactor, liquid metal cooled reactor

ABSTRACT: The distribution of temperatures in various parts of a 350 Mw fast-neutron sodium-cooled reactor was investigated by means of two special experimental models. The first model consisting of two loops was similar to the core of the BN-reactor while the second model was arranged for investigation of heat transfer in the shielding area. Particular attention was given to the centrally and peripherally located fuel elements that is to the fuel assemblies submitted to different heat transfer conditions. The core primary

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ACCESSION NR: AT5022450

loop was cooled by sodium²⁷ while a sodium-potassium compound was used as coolant for the secondary core loop as well as for fuel elements placed within lateral shields. The core model consisted of 37 tubes of which 34 tubes were provided with special welded fins. The shield model had an assembly of 19 tubes. A detailed description of the experiments was given and the results were analyzed. The irregularities in temperature distribution were graphically presented in 10 figures. It is proposed to resume the research on temperatures by using new models because the evaluation of temperature ranges and gradients on outer peripheral elements was not sufficiently reliable. Introductory information is also given on BN-350 reactor as well as on some heat transfer problems. Orig. art. has: 3 diagrams and 10 graphs.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: NP

NO REF SOV: 000

OTHER: 000

Card 2/2 *h-d*

L 44225-66 ENT(1)/ENT(m)/ENT(m)/T WW/DJ

ACC NR: AP6024536

SOURCE CODE: UR/0089/66/021/001/0013/0016

AUTHOR: Subbotin, V. I.; Ushakov, P. A.; Sheynina, A. V.

ORG: none

TITLE: Hydraulic resistance of narrow annuli with spiral fins

SOURCE: Atomnaya energiya, v. 21, no. 1, 1966, 13-16

TOPIC TAGS: reactor fuel element, ~~fuel element~~, annulus, hydraulic resistance, hydraulic losses, reactor channel, nuclear reactor coolant, fluid flow, flow rate

ABSTRACT: The effect of fin spacing on hydraulic resistance in narrow annuli was studied. Hydraulic losses were measured in narrow ($d/D=0.895$, where d = diameter of inside rod, D = tube diameter) annuli, having three spiral fins wound on a central rod. In the range of relative fin spacing of $3.5 < T/d < \infty$, the hydraulic losses during turbulent flow due mainly to friction with the channel walls. These losses can be calculated using the usual formulas for an annulus without fins. The increase in hydraulic resistance of the channel with a constant fluid flow rate is effective only with a small relative spacing between the fins ($T/d < 10$). The data obtained approximate the results obtained from measuring the hydraulic losses in staggered banks of finned rods

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UDC: 621.039.546.3

L 44225-66

ACC NR: AP6024536

with $S/d = 1.05$ in a longitudinal flow of a coolant. A. M. Barabanov
participated in the investigation. Orig. art. has: 4 figures and
14 formulas. [AV]

SUB CODE: 18/ SUBM DATE: 08Dec65

Cerd 2/2 MT

ck

19

Processes and Properties Index

Porous masses from water glass. P. G. Labakov.
Russ. 43,829, July 31, 1935. Water glass gel is treated
with milk of lime, poured into iron forms, and heated to
450-500°, or aged for 2-3 days, ground to powder, screened
and heated in the iron forms.

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

REGIONAL DIVISION

101000 MIP QNY GEL

ELLIPSOID

101000 GEL QNY 100

BUKHMEN, Ya.Z.; USHAKOV, P.G.

Prevent occupational poisoning. Bezop.truda v prom. 4 no.10:15-
16 0 '60. (MIRA 13:11)
(Gases, Asphyxiating and poisonous--Safety measures)

USHAKOV, P.G.

Provide for work safety in the operation of gas-fired equipment,
Metallurg 8 no.2:13 F '63. (MIRA 16:2)
(Iron and steel plants—Safety measures)
(Gas as fuel—Safety measures)

USHAKOV, P. I.

USHAKOV, P. I.: "Cultivating pine on the Shcholkovo teaching and experimental leskhoz, their adaptability, growth, and productivity." Min Higher Education. Moscow Forestry Engineering Inst. Moscow, 1956. (Dissertation for the Degree of Candidate in Agricultural Sciences.)

Source: Knizhnaya letopis' No 40 1956 Moscow

BOLOBAN, N.A., kand.tekhn.nauk; USHAKOV, P.I., nauchnyy red.; KHLUDEYEVA,
Ye.O., red.izd-vs; OSENEKO, L.M., tekhn.red.

[Handbook on safety engineering for tower crane operators]
Pamiatka po tekhnike bezopasnosti dlia mashinista bashennogo
krana. Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.
materialam, 1960. 15 p.

(MIRA 14:2)

(Cranes, derricks, etc.)

USHAKOV, P. I.:

Novocaine blockade in true colics in horses.

Department of Diagnosis and Therapy

L.I. Iakushkin, Professor, Doctor of Veterinary Sciences - Head of the
Department

SO: Collection of Scientific Works, Leningrad Inst. for Advancement of Veterinarians, Ministry of Agriculture USSR. State Agricultural Publishing House, 1950.

USHAKOV, F. I.:

The clinic of fluorine poisonings of goats.

Department of Diagnosis, Special Pathology and Therapy
L.V. Iakushkin, Professor, Doctor of Veterinary Sciences - Head of the
Department

SO: Collection of Scientific works, Lenin rad Inst. for Advancement of Veterinarians, Ministry of Agriculture USSR. State Agricultural Publishing House, 1950.

USHAKOV, P.I., lieutenant; SHCHERBININ, N.I., kand.veterin.nauk

Novocaine block in diseases of the digestive tract in animals.
Veterinariia 36 no.6:46-48 Ja '59. (MIRA 12:10)

1. Leningradskiy veterinarnyy institut.
(Novocaine) (Digestive organs--Diseases)

USHAKOV, P.I., dotsent; SHCHERBININ, N.I., dotsent

Diagnosis of traumatic reticulitis and traumatic pericarditis.

Veterinariia 37 no.8:60-62 Ag '60.

(MIRA 15:4)

1. Leningradskiy veterinarnyy institut (for Ushakov). 2. Leningradskiy
sel'skokhozyaystvennyy institut (for Shcherbinin).
(Cows---Diseases and pests) (Pericarditis)
(Stomach---Inflammation)

USHAKOV, P.N.; DENISOVA, I., redaktor; KIRSANOVA, N., tekhnicheskii redaktor

[Safety measures for work on hoisting machinery] Tekhnika bezopasnosti pri rabote na pod'emnykh mekhanizмах. [Moskva] Izd-vo VTsSPS
Profizdat, 1954. 63 p. (MLBA 8:4)
(Hoisting machinery)

GRINBOYM, M.Ya.; GUTOROV, V.G.; ZHILYAYEV, A.V.; KASATKIN, V.N.; LEVIN, P.V. [deceased]; MITYAKOV, V.S.; OKOROKOV, A.A.; USHAKOV, P.N.; BURKOV, G.A., laureat Stalinskoy premii, redaktor [deceased]; AYZENSHTEAT, I.I., redaktor; FRIDKIN, A.M., tekhnicheskii redaktor.

[Handbook on boiler inspection] Spravochnik po kotlonadзору.
Izd. 2-e, perer. Pod obshchei red. G.A.Burkova. Moskva, Gos.
energ. izd-vo, 1954. 568 p. [Microfilm] (MIRA 8:2)
(Boilers--Inspection)

MOROZOV, M.P.; ATRUSHKEVICH, L.G.; GUTOROV, V.G.; KONDRASHOV, A.M.;
MOROZOV, K.S.; NIKITENKO, I.S.; TATARENKO, V.A.; USHAKOV, P.N.;
ZHILYAYEV, A.V., otv.red.; VOLKOVA, V.A., red.izd-va;
IL'INSKAYA, G.M., tekhn.red.

[Regulations for the construction and safe operation of steam
boilers and air tanks in industrial locomotives] Pravila
ustroistva i bezopasnoi ekspluatatsii parovykh kotlov i voz-
dushnykh rezervuarov parovozov promyshlennykh predpriatii.
Obiazatel'ny dlia vseh ministerstv, vedomstv i sovnarkhozov.
Moskva, Ugletekhizdat, 1958. 25 p. (MIRA 12:7)

1. Russia (1917- R.S.F.S.R.) Komitet po nadzoru za bezopasnym
vedeniyem rabot v promyshlennosti i gornomu nadzoru.
(Locomotives)

USHAKOV, P.N., otv.red.; MAGAZINKR, S.I., red.izd-va; SHKLYAR, S.Ya.,
~~otv.red.~~

[Rules for the installation and safe operation of steam boilers]
Pravila ustroistva i bezopasnoi ekspluatatsii parovykh kotlov.
Izd.]. Moskva, Ugletekhizdat, 1959. 83 p. (MIRA 12:12)

1. Russia (1923- U.S.S.R.) Komitet po nadzoru za bezopasnym vedeniem
rabot v promyshlennosti i gornomu nadzoru.
(Boilers)

USHAKOV, P.N., inzh.

New requirements for electric equipment of cranes. Bezop.truda
v prom. 3 no.3:34-35 Mr '59. (MIRA 12:4)
(Cranes, Derricks, etc.--Electric driving)

MARINICHEV, N.N., inzh.; USHAKOV, P.N., inzh.

Causes of accidents during operations of load-lifting
cranes. Bezop.truda v prom. 3 no.12:19-20 D '59.

(MIRA 13:4)

(Cranes, derricks, etc.--Safety measures)

USHAKOV, P.N., inzh.

Installation of tracks for tower cranes on sand. Bezop.
truda y prom. 4 no.2:18-20 F '60. (MIRA 13:5)
(Cranes, derricks, etc.)

MOROZOV, M.P., red.; GUTOROV, V.G., red.; ZHILYAYEV, A.V., red.;
KONDRASHOV, A.M., red.; OKOROKOV, A.A., red.; USHAKOV, P.N.,
red.; OKOROKOV, A.A., otv. red.; VOLKOVA, V.A., red. izd-va;
BOLLYREVA, Z.A., tekhn. red.

[Regulations for the installation and safe operation of
elevators; mandatory for all ministries and departments]
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USSR/Biology - Marine fauna

Card : 1/1

Authors : Ushakov, P. V., professor

Title : Studying fauna of the far-eastern seas

Periodical : Vest. AN SSSR, 24, Ed. 5, 81 - 83, May, 1954

Abstract : Describes a conference which dealt with studying the fauna of the far-eastern seas and adjacent parts of the Pacific Ocean. The conference was organized by the Zoological Institute of the Acad. of Sciences in Leningrad.

Institution : ...

Submitted : ...